3. (amended) A transmitter for encoding symbols on a plurality of sub-carriers at a plurality of symbol intervals, comprising:

a differential encoder operable to receive binary data and to output a digital signal that encodes said binary data as symbols that are the difference between the states of at least a first and second adjacent sub-carriers at a first symbol interval, and, that are the difference between the state of said first adjacent ~~states of a~~ sub-carrier at at least ~~a first and second~~ said first symbol interval and an adjacent symbol interval~~s~~;

a digital to analog converter coupled to receive and convert said digital signal to an analog signal, and to output said analog signal, and

a modulator coupled to said digital to analog converter to receive and modulate said analog signal onto a carrier signal.

4. (amended) A receiver for decoding symbols differentially encoded on a plurality of sub-carriers at a plurality of symbol intervals, comprising:

a demodulator having an input for receiving said ~~a~~ plurality of sub-carriers, said demodulator operable to demodulate and output an analog signal;

an analog to digital converter coupled to receive said analog signal from said demodulator and to output a digital signal, and

a differential decoder coupled to receive said digital signal from said analog to digital converter, and operable to compare the state of at least a first and second adjacent sub-carrier at a first symbol interval to decode at least a first symbol across frequency as the difference in said sub-carriers' states, and operable to compare the state of said first adjacent ~~a~~ sub-carrier at at least ~~a first and second~~ said first symbol interval and an adjacent symbol interval~~s~~ to decode at least a second ~~first~~ symbol across time as the difference in said sub-carrier states, and operable to output said symbols.

5. (amended) A method of differentially encoding symbols, comprising the steps of:

encoding a first symbol as the difference between a first sub-carrier state and an adjacent sub-carrier state at a first symbol interval, and

encoding a second symbol as the difference between said first sub-carrier state at said first symbol interval and said first sub-carrier state at an adjacent symbol interval.

6. (amended) A method of differentially decoding symbols, comprising the steps of:

decoding a first symbol as the difference between a first sub-carrier state and an adjacent sub-carrier state at a first symbol interval, and

decoding a second symbol as the difference between said first sub-carrier state at said first symbol interval and said first sub-carrier state at an adjacent symbol interval.

7. (amended) A method of differentially encoding packets on a plurality of sub-carriers at a plurality of symbol intervals, comprising the steps of:

modulating the state of at least a first and second adjacent sub-carriers at a first symbol interval to encode at least a first symbol across frequency as the ~~a~~ difference in sub-carrier states, and

modulating the state of said first adjacent ~~a~~ sub-carrier at at least ~~a first and second~~ adjacent symbol intervals to encode at least a first symbol across time as the difference in said sub-carrier states~~between adjacent symbol intervals~~.

8. (amended) A method of decoding data packets that contain data symbols differentially encoded on a plurality of sub-carriers at a plurality of symbol intervals, comprising the steps of:

comparing the state of at least a first and second adjacent sub-carriers ~~sub-carrier~~ at a first symbol interval to decode at least a first symbol across frequency as the difference in said sub-carriers' states;

comparing the state of said first adjacent ~~a~~ sub-carrier at at least ~~a first and second~~ said first symbol interval and an adjacent symbol ~~interval intervals~~ interval to decode at least a first symbol across time as the difference in ~~is~~ said sub-carrier states.

9. (canceled).

10. (canceled).